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ESOTERIC BEAUTY AND UTILITY

OF

THE MICROSCOPE

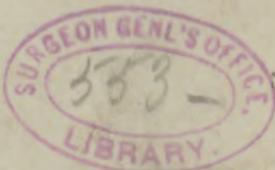
BY

EPHRAIM CUTTER, A.M., LL.D.

M.D. Harvard, 1856, and University of Pennsylvania, 1857

Corresponding Member of the Belgian and Italian Microscopical Societies and the Gynecological Society of Boston; Member of the Massachusetts Medical Society, American Medical Association, etc.

WITH INDEX AND BIBLIOGRAPHY



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"Asthmato ciliaris and Grip," pp. 17-25, published in the *Journal of the American Medical Association*, June 4th, 1892, and the *Microscope*, August, 1892.

"Microscope not a Toy," pp. 31-40, published in the *Journal of the American Medical Association*, April 30th, 1892.

"Asthma and Hay Fever," pp. 26, 27, prepared specially for this reprint.

Plates, pp. 28, 29, 30, from article "Food and Tuberclle," presented to Section Internal Medicine, Tenth International Medical Congress, Berlin, 1890.

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THE ESOTERIC BEAUTY AND UTILITY OF THE MICROSCOPE.

BY EPHRAIM CUTTER, LL.D., M.D.,
OF NEW YORK.

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Three things prompt the writing of this paper:

1. It is the tri-centennial of the microscope.
2. It has been stated that not much has been done with the microscope in America (1891).
3. At a meeting of the Presbyterian Club of New York, a few years ago, a divine repeatedly alluded to the "accursed microscope." This man represented himself. It is a libel on his church to think such a thing. It is a patron of science, microscopy included.

Now the writer feels that he owes a debt of gratitude to the Dutch for inventing the microscope—that America has done and is doing something with the microscope of great practical value, and that things of beauty and utility should not be called *accursed*. Hence he begs to testify what he knows in his own practical, every-day experience. While giving due credit to others, he holds himself only responsible for what is here asserted, like a witness in court. The term esoteric is used to express the inwardness of this beauty and utility as a matter of fact, in the hope that they may become exoteric, and benefit others as much as they have the writer. The beauty is that grace and feature of excellence of the microscope that pleases the mind as a means to an

end. The microscope is not an end. It is a great mistake to think it is an end.

The Microscope in Disease.—I use it to examine the blood, sputum, faeces, urine, skin, secretions of eyes, ears, nose and glands, and vomitus.

This morphological examination does not exclude other physical exploration or chemical examination. It supplements them, and with them forms a most valuable basis for the detection and treatment of pathological conditions.

For the sake of brevity, please let *Morph. A* = The morphology of the blood.¹ *Morph. B* = The morphology of the sputum, which may include all discharges from the air passages, which are expectorated through the mouth. *Morph. C* = The morphology of the secretions and other objects found with the use of the microscope on the skin, specially in the sweat and dirt. *Morph. D* = The morphology of the faeces. *Morph. E* = The morphology of the urine. *Morph. F* = The morphology of the milk. *Morph. G* = The morphology of the secretion of the eyes. *Morph. H* = Morphology of the secretion of the ears. *Morph. I* = Morphology of the secretion of the nose.

Consumption—Phthisis Pulmonalis. *Morphs. A, B, D, E.*—The microscope is a means to the following ends in the diagnosis of: 1. The pre-tubercular state any time within a year before the lungs break down, which forms tubercular. 2. The tubercular state. 3. To distinguish between consumption of the lungs and bowels. 4. Between consumption and bronchitis and asthma. 5. Fibrous consumption. 6. Consumption of the blood. 7. Between consumption and uterine disease. 8. Bright's disease of the lungs. 9. Consumption in cases of life insurance. 10. To know how the patient gets on under treatment. 11. To know when to add to or restrict diet. 12. To know when the patient is cured.

¹ See Clinical Morphologies—E. Cutter. They are too long to introduce here.

Remarks.—Sometimes, to distinguish elastic or inelastic lung fibres in the sputum, the polariscope must be used, as cotton, linen or woolly fibre may be changed by the action of the sputum so as to closely resemble the lung fibres, which do not polarize light. No real progress to health is made in any case before the normal morphologies take the place of *Morph. A, B, D, E.* The microscope alone reveals these, hence what a useful and beautiful thing it is to settle so many points that are a great trouble to physicians. To give an idea here of these abnormal morphologies would take too much time and space. Indeed, they are best taught by practical lessons from some one who understands them. These ideas are not wholly original with the writer. They are American, and have been in use for many years. The writer reported at the Tenth International Medical Congress, Berlin, one hundred cases of consumption; forty of them were cures, mostly of ten years' standing; some of twenty-five years. The treatment has been published in the Trans. Am. Med. Association, 1880. From these we infer that the Netherlands are to be much honored for the discovery of the microscope, that something grand has been done in America with the microscope, and that if 40 per cent. have been saved by using the microscope, it is not an "accursed" instrument. N. B.—These one hundred cases do not comprise all of my cases in consumption.

Rheumatism. Morph. A, E, C.—The microscope shows this to be a disease of the blood first, and next of the fibrous and cartilaginous tissues. Some call it a "gravel of the blood." Without the microscope no certain diagnosis can be made; with it the following varieties may be generally made out: 1. Cystinic. 2. Oxalic. 3. Phosphatic. 4. Uric. 5. Hippuric (rare). Besides these are enlarged and thickened fibrin filaments; thrombi, which may become emboli; adhesive and plastic red blood corpuscles, deprived of their covering of neurine, and thus clotting into firm ridges,

rows and masses, like crowded and frightened sheep. These conditions usually are latent for a longer or shorter time, and are brought out by some secondary cause, as exposure to cold and wet. The gun is loaded before it can be fired off by the explosion of the cap. I have found the blood morphology of rheumatism valuable in differentiating other diseases. For example, most people call fugitive and wandering pains rheumatism, and make out their own diagnosis for the doctor beforehand. But they do not know that other complaints will cause such pains also. So, when a woman complains thus, and does not have the morphology of rheumatic blood, the cause will often be found to be local. When a man complains thus without the morphology of rheumatic blood, the microscope has traced it to neurasthenia from catarrh of the urinary tract.

Another significant practical point found in rheumatism, is that there is generally an enlargement of the heart. The microscope shows that it is due to the adhesive condition of the red blood corpuscles, to the strong and more numerous fibrin filaments and skeins, to the blood crystals, and to the minute clots that are found in rheumatic blood.

When it is considered that the capillary circulation goes on in tubes $\frac{1}{3000}$ inch in diameter, it stands to reason that it would take more force to drive the blood with rheumatic morphology than when it is normal, with the red blood corpuscles clean-cut, distinct and covered with neurine so that they do not adhere to each other or the walls of the vascular system, and thus enter and pass through the capillaries with facility and ease. The increased force needed to drive the blood demands an increased amount of muscular tissue in the heart, just as the muscles of the blacksmith and athlete increase, and so comes the cardiac hypertrophy.

In such cases it is remarkable how readily the heart will resume its normal size when the morphology of

the blood is restored to normality by treatment, and thus the microscope is a thing of beauty and utility in the handling of rheumatism and heart disease.

Pre-embolic State.—I have found the microscope to reveal the fibrinosis of embolism. For embolism is merely a plug of fibrin filaments or skeins stopping up an artery.

I have been able to avert this condition in child-birth by the use of the microscope.

Is not this worth some gratitude?

Blood diseases, such as leucocythaemia, malaria, erysipelas, boils, carbuncles; these I cannot understand without the use of the microscope.

Asthma and Hay Fever I find are explained by *Morph. B.* They are essentially a gravel of the lungs and nares. Epidemic influenza or infusorial catarrh is made to me a practical business matter by the use of the microscope. Bright's disease of the kidneys cannot be made out unless *Morph. E.* shows the casts of the kidney tubes and fatty epithelia, besides the macroscopic albumin. Neurasthenia in men is satisfactorily explained by the use of the microscope, showing catarrhal discharges in one of three forms: 1, Protoplasmic; 2, Skeins; 3, Indian-club shaped. Sometimes these forms are mingled together. A one inch objective is the best for this determination.

Diagnosis of cancer.—Diagnosis of healthy milk used as food. This is not easy.—Trichinous muscular tissues.—Eggs of intestinal worms in faeces.—Parasites, as itch insects, harvest mites, etc.—Diagnosis of ovarian cysts from fibro-cysts.—I find the morphology of the faeces gives indispensable information as to the food the patient has eaten; the character of his digestion, the amount of intestinal fermentation, the ability of the organs of digestion to do their work; shows the presence of tape and other worms, and is, with polarized light, a source of some of the finest microscopical exhibitions. Thus making

the most repulsive and disagreeable objects in Nature aesthetically agreeable and attractive, certainly shows great transforming powers in the microscope. Reference is here made to the beautiful dissections of vegetable tissues found in the faeces. The same remark applies to the morphology of the sputum in a limited measure. Beauty is found in the ruins of the lungs.

The morphology of the air, which surgeons should study, has been very instructive to me. Malaria (or bad air) in *Morph. B.* has been a clear subject since this has been studied.

Morphology of dirt as found in and on the human body I have found very instructive in my business. Prof. Reinsch discovered vegetation on the surface of the coins used as money, and I have found the same in the dirt under the finger nails of my own hands. The late lamented Dr. Louis Elsberg coöperated in this study.

Morphology of Hydrant Drinking Waters.—Having studied the morphology of the hydrant water of over thirty cities and towns, I was called in court as an expert on a water privilege case. I was able to prove that the water was taken from the miller's supply, which had been denied. I am glad to know that the Massachusetts State Board of Health is paying attention to this subject of so great sanitary importance.

Morphology of Food I find is a most interesting subject. It shows the changes produced by the various operations of cooking, which is connected with things which are supposed to be thoroughly understood because they come so closely in contact with the human body constantly ever since man came into the world. Foods are easily had, and easy to examine. Polarization shows how well the food is cooked, as starch and red muscular fibre do not polarize light when cooked, and of course when partly cooked, partly polarize light. Potatoes, beans, leavened and unleavened bread, crackers, dough, etc., are fine objects to

study. There is no doubt that a great deal of sickness comes from imperfectly cooked food. I find the microscope an excellent means to tell what foods are bad for my patients, by studying the *Morphologies A, D, E.* Strawberries, for example, are poor food. This is a large, new and interesting field of study. I hope microscopists will cultivate this field more and bring out as good results as Dr. Taylor, of the U. S. Agricultural Department, has done with butters, true and false.

A. Morphologies of Invalids' and Infants' Food, Cereals Especially.—This division comes almost under the heading of adulteration of foods, so little do the advertised statements as to their character come up to their own demands. They are not adulterated, but wrongly described. I have tried to protect invalids and infants, with little success so far as I can learn. The microscopists who have this class of individuals in their families cannot afford not to examine their food, and protect the helpless ones from harm if not imposition. Of course this morphological examination should be supplemented by the chemical and physiological examinations. All have a right to examine their food as far as possible macroscopically, but the microscopic examination will acquaint the inquirer with the facts very much more satisfactorily.

Morphology of Adulteration in Foods is a large one and has been made the subject of a volume by Hassall. There is great need that this examination be kept up, as these admixtures are so common everywhere. When microscopy becomes as common as music and is used as much, then the queens of our parlors will vie with the queens of our kitchens in securing pure, not "strictly," "absolutely" and fully "warranted" pure foods.

Morphology of Drugs in Powders, Extracts, Substances Crystals, Oils, etc.—I have not cultivated this department as much as I would like to, but I see here a large field for the use of the microscope as a means

to the end of uniform and genuine preparations.

Morphology of Wearing Apparel.—I have found the use of the microscope to be of much avail in selecting silk patterns for dresses and clothing for my family. The time is coming when the microscope will detect the germs of diseases in infected clothing. It has come.

Some years ago the ladies of Boston held a fair to buy the old South church. A party in charge of one department perpetrated some frauds and erased as far as possible by friction the lead penciled items entered in the department memorandum book. I was able by low powers to reproduce nearly all the erasures, much to the delight of the ladies.

This syllabus, though incomplete, is enough to show that the demand of microscopy in pleasure and business is one that commands the respect of thoughtful minds, and should be extended to embrace thousands where it does now one individual, for it is an instrument of precision capable of great good to all.

THE MORPHOLOGY OF RHEUMATIC BLOOD.

It is not intended to make this paper exhaustive, but to point out the prominent features. This corroborates the Salisbury paper in the American Journal Medical Sciences, Philadelphia, Oct., 1867.

Examination immediate, not mediate.—1. Collection. Specimens must be removed from blood stream as quickly as possible. The patient should be present and the blood should be examined directly, with no loss of time. This is particularly insisted on, as there is a general impression that blood can be collected by anyone and kept almost any time before examination. Mistakes have come from this misapprehension. 2. Kind of blood collected; capillary, not venous, nor arterial. 3. Site of collection.—The forearm, near the wrist. With some persons the fingertip is a favorite place for collecting blood, but the

fat and dirt found there are objections, to say nothing of the needless pain of nerve papillæ puncture. If dirty, the forearm should be washed with soap and water, or ammonia and water, and rubbed dry with a clean towel previous to puncture. 4. Instrument for collecting the blood. Codman and Shurtleff, Boston, Mass., prepared the writer's scarificator, that can be buried to the depth desired with a single sudden painless motion. It is desirable to obtain no more nor no less blood than is sufficient to fill the space between an ordinary cover glass and slide. This amount is a drop about one-eighth of an inch in diameter. By thus preserving a uniformity in the size of the drop of blood as near as is possible, one can form an approximate judgment of the comparative number of corpuscles in different specimens, and the relative proportion of the serum to red and white corpuscles and of the red and white to each other. Best to clean the scarificator point by driving it into a clean towel after each use. 5. How to get the blood. Having the forearm and the instruments ready, the observer grasps the wrist with the left hand so that the skin is drawn tense; the scarificator in the right hand of the observer is applied to the radial or ulnar edge, whichever is held uppermost, avoiding veins, and the point is entered by approximating the thumb and fingers holding the scarificator. The point then pierces the skin so quickly as hardly to be felt, and if the capillary circulation is good, the cut fills with blood and exudes. Usually the sluggish circulation requires a squeezing of the cut to make the drop exude. A clean scalpel is then used to scrape off the blood and to transfer it to the slide, or the slide can be touched to the drop directly, when it is immediately covered and transferred to the stage of the microscope, previously prepared. 6. Power employed. Objectives, $\frac{1}{4}$ to $\frac{1}{8}$ inch; eyepieces, 2 or 1 inch. The writer uses Tolles'.

What to look for in rheumatic blood. 1. Red cor-

puscles, color, form, plasticity, adhesiveness. In rheumatism they are generally sticky and adhesive, outlines winged, huddling together in ridges or irregular masses like frightened sheep in a fold ready for shearing. They act as if their covering of neurine was removed, hence they travel with friction through the blood vessels and adhere together. 2. White corpuscles. They are apt to be too numerous, enlarged in size and filled with granules, which may or may not be salts in granular form, as the blood in rheumatism contains more saline bodies than normal. They also adhere to each other or foreign bodies and are found in thrombi and emboli. 3. Serum. After the blood has been a short time on the stage the serum will become filled with: (A). Fibrin filaments in network in the small meshes and strong threads, while in healthy blood the meshes are large and the threads so subtile and minute as almost to elude observation, like the outside hyaline carapace of a *Stephanoceros*. These same small meshes and strong-threaded fibrin filaments are seen in consumptive blood, and are due to a rheumatic complication. (B). Fibrin filaments in larger threads, ribbons and skeins. These are very marked at times in size and length. They often-times form skeins of considerable size and length. When long and narrow they will run through two or more fields of the microscope. Often they are of such transparency as to be almost overlooked, but usually they are of a white color, appearing like strings of fibrin in the blood, which they really are. When the red corpuscles crowd around them as crystals of sugar about a string in syrup, and a ridge is seen of unusual prominence, length, twists and curves, then a curl of fibrin filaments is usually found to be the basis of the configuration. Sometimes the skeins are inextricably coiled and curled up. Sometimes they are free like a lock of combed hair. Sometimes the skeins are very numerous, in which case embolism is to be feared. Sometimes they are few and isolated.

Their unevenness and transparent snowy whiteness are usually enough to diagnosticate them from the mycelial filaments found in the blood, and which belong to the vegetable kingdom. They are found during pregnancy, and I have no doubt become a serious complication in some cases. Nature will clear them out of the blood if she has a chance to do it. (C). Fibrin filaments in thrombi that become emboli. These are found simple, when you can readily trace the filament curled up on itself many times and retaining its cylindrical character. Or the mass is made up of the filaments with their bloody substance melted or fused together so that all trace of the filaments is lost, as in mother of vinegar, or embracing within their substance red and white corpuscles, crystals either entire or fractured, one or all. At times they are very large comparatively, and are probably formed by mechanical accumulation on the periphery of other fibrin filaments, or form elements encountered in the blood stream, as a snow ball grows by rolling in the snow. The presence of such bodies in the blood stream sufficiently explains the formation of fibrinous concretions on the valves of the heart or amongst the columnæ carneæ. Sometimes they are very large. For example, in the heart of the late Dr. Benjamin Cutter, the father of the writer, two fibrinous concretions were found each measuring eight inches in length. One originated among the columnæ carneæ of the left ventricle and extended into the aorta; the other arose among the columnæ carneæ of the right ventricle and extended into the pulmonary artery! It is easy to understand local swellings about joints and other parts of the body when such thrombi or clots become emboli or plugs in the adjacent blood vessels. When such are found in the blood of a patient there is need of immediate treatment, for sudden and otherwise mysterious deaths have been traced back to embolism. So if any proof of the value of the microscope in physical

exploration was needed, this instance would serve and show that it is not a mere toy. This is not a paper on treatment, but it may be in order to here intimate that ammonia baths, and one pint of hot water flavored with the aromatic spirits of ammonia drank one hour before each meal and on retiring to bed, with medicines addressed to putting the liver, skin, kidneys and other emunctories in good condition, and regulation of diet will soon remove such thrombi, and *no cure is thorough* unless the microscope shows that the blood is restored to its normal morphology. Such is the positive value of the microscope in the treatment of rheumatism! (D). Crystalline bodies. These are generally, 1, cystine; 2, oxalate of lime; 3, phosphates; 4, uric acid; 5, hippuric acid, etc. These bodies are found in the human body normally in the urine and faeces, but usually in the blood when imperfect feeding or some other cause has deranged the functions of digestion, assimilation, organization and excretion. If the salts are found in too great quantity to be kept in solution by the eliminating fluids, they accumulate in those fluids. Uric acid is more soluble than oxalate of lime or cystine, hence it is natural that the latter are oftenest found in the blood. The phosphates of lime, soda and magnesia, accumulate likewise. The physical presence of these salts in the blood, fluids and tissues of the body, seems to be a sufficient cause of the pathological states we call rheumatism. The proof of this lies in the fact that when these crystals are removed, along with the other conditions named, a cure is effected. It is true that persons may have the morphology of rheumatic blood, and yet have no pains, no swellings, no troubles that they can detect, until they are upset by a cold or some other exciting cause. It will, then, be more accurate to refer the morphology of rheumatic blood to the domain of predisposing causes, it being comparable to the ammunition in a gun barrel, the cold or other exciting cause being like the pulling of the trigger.

The explosion may be called rheumatism. If the gun is not loaded, or the trigger is not pulled, there is no explosion. So if the predisposing and the exciting causes are not present, we cannot have rheumatism. Once the morphology of rheumatic blood was found in a lady apparently in perfect health. She was surprised at the diagnosis, but coming later in contact with an exciting cause, she wrote, "You were right about my rheumatism;" and thus her case affords an instance of the value of the microscope in medical exploration. (E). Pigment matters. These striking objects are very impressive, and give the observer an idea that they come from the morphology of air, and hence are foreign bodies from outside the body. Giving all due allowance for this source of error, long study has convinced the writer that they, some of them, belong to the morphology of rheumatic blood. Their peculiar beauty of emerald green, bronze, yellow, black, in various shades, all invisible and unknown without the use of the microscope, opens up a new and lovely field of medical thought. What their chemical nature is, is unknown. This is a nice problem for solution. For our purpose, which is clinical medicine, it is enough for us to know their presence, and to get rid of them by putting Nature's means of elimination in good order, and giving her force enough to remove them. This, to us, seems the true way to practice medicine.

1. Cystine, $C_6 N H_6 O_4 S_2$ (Golding Bird). A crystalline substance found in the human body. It is the most common form of gravel found in rheumatic blood. Of course, in the blood stream the crystals are subject to friction, and cannot be expected to have the exact angles of the form found on the skin, or in the still fluid of the urine. In cut No. 1, one was greenish inside and purplish outside; three was straw-color, four ultramarine, 5-10 greenish white. These were abundantly found in the blood of an adult man who suffered from acute sciatica. There

were also found long skeins of fibrin filaments, strong fibrin network, red blood corpuscles, rather palish in



color, sticky, and settling into ridges and huddled masses. Under a course of hot water drinks flavored with lemon juice, and with ammonia baths, along with alterative medicines, he was soon relieved of the sciatica, and his blood was found to be cleared of the cystine.

A patient in the practice of my son, Dr. John A. Cutter, sent from her home in Kentucky a specimen of urine which contained an unusually large amount of cystine crystals. He advised her that she was eating largely of the yolk of eggs, and that if she did not stop she would have rheumatism, and gave her some directions for treatment. She persisted in her dietary sins, and had what her local physicians called an extremely severe attack of neuralgia of the stomach.

Oxalic Rheumatism.—Oxalate of lime occurs in the blood, in amorphous granular masses. The urine is usually loaded with well-formed octahedral crystals, and may be milky in the granular oxalate of lime. They occur also in the faeces and expectoration ("gravel of the lungs"). Sometimes cystine is associated; sometimes other crystalline masses, crushed and fractured, are also found. Sometimes the oxalate of lime fills, more or less completely in crystals, a thrombus like plums in a pudding.

Lithic Rheumatism.—Uric acid and urates are found in the blood, in granular amorphous forms, rarely crystalline. Also in the urine, on the skin, in the faeces, saliva and sputum. Bloodropy, ridgy, adhesive. Emboli made up of fibrin and other formed elements of the blood.

Phosphatic Rheumatism.—Here the triple phosphates and the phosphates of the alkaline earths are found in the blood, in granular masses and crystals. Found in great rounded collections, which sometimes are beautifully colored an aniline blue of great purity. To make the diagnosis sure, they should be found also in the skin, or the urine and sputum. As the blood stands longer and longer on the slide and under the cover glass, these crystalline forms remain visible, with even better defined outlines than at first. So do cystine and oxalate of lime. The granules are not uniform in size.

Hippuric Rheumatism.—This is rare, and found usually in heavy feeders on vegetable foods, such as oatmeal. In the blood it is in granular form; crystalline forms in urine.

Carbonate of Lime Rheumatism.—Rare. Present in the blood in granular form, and in the urine in solid globes, with radial rays and dark color. Effervesces with acids.

Differential Diagnosis.—When persons complain of fugitive wandering pains, it is usually called rheumatism, especially if the pain increases at night; but these pains may be due to nervous prostration or neuralgia; that is, "pain in the nerves," the cause of which we are unable to find out. Once, at a medical college, I wished to study for demonstration rheumatic blood. A woman was brought to the dispensary with rheumatism. But her blood showed no signs of rheumatism. On examination, she was found to have uterine disease, which caused the pains.

Often have men come to be treated for rheumatism, and their blood been found to be normal, but

careful exploration has found continuously in the urine, for the larger part of a week, protoplasm in skeins, or Indian club-shaped catarrhal discharge, which accounted for the pain by neurasthenia. A 1-inch objective is best for the detection of this catarrh.

The Journal of the American Medical Association, May 7, 1892.

The Microscope, January, February and March, 1892.

THE ESOTERIC BEAUTY AND UTILITY OF THE MICROSCOPE.

BY EPHRAIM CUTTER, LL.D., M.D.,
OF NEW YORK.

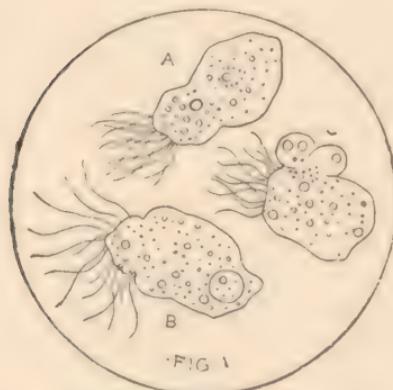


FIGURE 1.—A. *Asthmatos Ciliaris*, mature form.
B. *Asthmatos Ciliaris*, with inside young
C. *Asthmatos Ciliaris*, mature form, the budding process going on.
Patient of E. Cutter



FIGURE 2.—A. Deformed Ciliate Epithelium from Air Passages in La Grippe.
B. Another specimen without Cilia. Patient of E. Cutter.

IV

ASTHMATOS CILIARIS AND GRIP.

Epidemic influenza, or grip, is not a new disease. To repeat, I am grateful to American microscopy for

views of grip which are positive and tangible. One was once accused of jumping to conclusions too quickly and without sufficient investigation, and told that if he had an idea he ought to stick to it, develop it, and not sacrifice himself. Let us learn from erities and take a jump of fifteen years backwards to an observation. Fifteen years is not a too quick jump to make, and must be safe.

June 20, 1877, I was in Cleveland, Ohio, studying the causes of disease with Dr. Salisbury. He had the grip, and showed me, under the microscope, in his excretions from the air passages (*a*), a dead infusorium he called asthmatos, and mentioned in Kent's Infusoria, page 466, and the Micrographic Dictionary, 1883, as a genus of cilio-flagellate infusoria. "*Characters*: free, rounded, with an anterior bundle of cilia and flagelli-form filament. *Asthmato*ciliaris, length 1-1200 (Salisbury);" (*b*) a living, lively and mature specimen that died under our sight; (*c*) several young ones which were globar, provided with beautiful cilia, whose motions were as follows: 1. Some rotated on their own axes, because of the graceful waving backwards and forwards of the cilia moving together like flails beat in unison as to time and direction. 2. Some, where the wave motion of the bodies were less than the wave motion of the cilia. 3. Some had a non-synchronous movement of cilia; that is, while one cilium waved to the right, another was waving to the left, and so on. In other words the cilia did not move together, but were independent, and moved asymmetrically.

The cilia were not arranged in straight lines, or rows, side by side, but were planted as trees come up on a conical or rounded hill, or whiskers on the chin.

Size was on an average about that of the oval mucous corpuscles which show the so-called Bruno-nian movements.

The cilia were as long and longer than the diameter of the globar body. Dr. S. spoke doubtfully of

them, and was not sure of them until the microscope revealed a few of them in the field. He said that sometimes the field is full of them in full activity, and so I have found them.

Since this observation, many others have been made and published confirming it. The following additional motions have been observed.

a. A specimen has been seen to turn completely over, so that the cilia faced in the opposite direction, and then to turn back again to their original position.

b. They have been observed to bud.

c. To divide by fissure.

d. To have a parturition of a young one, which moved from one side of the mother to the opposite, and then issued a new being.

e. A bud of about one-quarter the diameter of the mother would pull off, taking with it a filament of the parent substance, so that mother and young were connected as with an umbilical cord.

They would continue to separate more and more, the filament or gubernaculum growing more and more attenuated until it broke.

The part attached to the mother was drawn into it. They separated as if forced apart by some one as candy is pulled by a confectioner.

Prof. Paulus F. Reinsch, of Erlangen, Germany, saw this phenomenon with me, and said it was a new observation in genesis.

f. Besides these, the asthmatos locomote sometimes from one part of the field to another, and in opposite direction to each other. The universal prevalence of grip has made it an easy disease to observe. The best time to collect the forms is the first stages, when the coughing and sneezing are on. Later, it is more difficult to detect the asthmatos, as they seem to penetrate to the deeper air passages, to the maxillary antra, and to the frontal sinuses even, and are more difficult to dislodge. Still, they leave behind irritation after they have relinquished the

outer air passages. Usually they are more abundant in the clear, glairy, transparent mucus than in the darker and white excretions

HOW TO COLLECT.

I use the following modes:

1. Place the specimen of sputum on a slide and spread out in a thin film. Examine under a one-quarter inch objective which has a working distance of one-eighth of an inch at least. I like a large cell, say two inches by five-eighths of an inch. Mine is of brass and glass. Any one can make a cell by heating sealing wax and moulding it into a cylinder about one-eighth of an inch in diameter, and long enough to be laid in the above size on a slide. If, then, this slide is gently heated from below so as to melt on the sealing wax all around, the cell will be complete.

2 If immersion objectives or the clinical microscope are used, a cover is needed, and the extra excretions removed by a bibulant, as cloth or paper. I prefer the light from a good adamantine candle, or oil lamp. Mode one gives the largest field at once and saves time. Higher objectives may be used. I have photographed the asthmatos with the one-sixteenth and the one-seventy-fifth inch objectives, and demonstrated the microphotographs to many people.

It is not now denied that their forms exist in grip.

WHAT HAS BEEN SAID TO ME ABOUT THEM.

1. "Pshaw! No such thing as a cause of grip" This was uttered by an old physician—one of the most wealthy people in his city, and made so by his profession. This remark is not worth putting down here, save that he is in the full tide of a large practice, and has to treat the grip without microscopy, and so spoke from no personal observation in this decided way, settling for himself and his patients this question at once. He knew nothing about infu-

soria, nor, from his own success in reaping the monetary reward of his professional life, could he think it needful for him to know. Useless to argue with such.

2. Others said that the forms called asthmatos were deformed ciliated epithelia. This narrows down the question to asthmatos versus deformed ciliated epithelia. One gentleman showed me a physiology where these forms were figured as deformed epithelia found in grip. Dr. Leidy, in 1879, came out and took the same position, and gave figures of the forms he had observed in the excretions of patients. These statements were enough to satisfy them and those who did not use the microscope, in favor of ciliated epithelia deformed.

3. Some years ago I was asked by an eminent physician to review his work on throat diseases, which is deservedly highly esteemed. "Why don't you put in something about the asthmatos?" "Send me an account and I will do so," was his answer. I sent him a description, with drawings and specimens. He replied that he would publish this account, but not the cuts, as he had taken the specimens and cuts to three eminent microscopists, *none of whom agreed with each other* in their observations, but that one showed him in an infusion of grass under the microscope just such forms as were figured in the cuts, and said that infusions of grass probably had been mixed with the excretions."

I replied, "Give me the name of your savant." He would not, and added that I had no reason to be vexed. I replied, "Your action in rejecting my cuts says louder than in words, 'I do not use them, as infusions of grass were probably mixed with the excretions from the air passages.' Now, to settle this point, please show to the gentleman who made this remark the enclosed list of the names and addresses of eighteen persons who have seen me take excretions from the air passages of patients suffering

from grip, and demonstrate the forms I call asthmatos without any admixture of the infusion of grass nor anything else." In this list were the names of my medical teachers, Oliver Wendell Holmes and Dr. H. I. Bowditch. The cuts were inserted.

4. Another gentleman said something about the asthmatos to me publicly which I relate here as a matter of history solely. I was called to see a child 2 years old, said to have lung fever. Face red and countenance expressive of great suffering. Incessantly and noisily coughing and raising; head hot; pulse normal; breathing normal when not coughing. From the pulse and respiration I doubted the pneumonia. Down the upper lip ran considerable thin, acrid, watery mucus from both nares. Some of this I scraped off, and by aid of the clinical microscope at once found it swarming and alive with asthmatos ciliaris. I used an atomized, saturated watery solution of the benzoate of soda. The case recovered sooner than I wished, for I was anxious to study the unusually lively forms. Thinking that this was the way to practice medicine, and innocently anxious that my medical brethren should know about it, I read a paper to them on this case, illustrated with lantern projections. After I got through, a gentleman spoke, and as I was busy with caring for my lantern (I always do this, so as to be sure it is in order for future use), I did not notice what he said until I caught the words: "Dr. Cutter knows nothing about this subject." I then recognized the voice as that of a gentleman I had known to bulldoze another who had read what I thought was a very nice medical paper on the lines of pleuritic effusion, and at whom I was very indignant, because of his palpable injustice and want of professional courtesy to the reader. I made up my mind that if he ever talked to me in that style, I would give him the treatment I thought he merited. To tell the truth, I had forgotten all about this, and had counted only on a

courteous, if not warm reception. In an instant it flashed upon me what to do. So I called the gentleman to order, saying that I had come there in good faith, on the principle that if any medical man knows, or thinks he knows, anything new or valuable to relieve suffering and cure disease, he is bound to make it known to his brethren, and so long as he observed the rules of good breeding, he was entitled to a respectful hearing, and hence I would not be insulted by him or any one else. I stood before him and said: "Tell me if I lie," and that there were other observers than myself, covering several years and thousands of cases. Had he told me this, I was intending to sue him for defamation of character, because he appeared to me to stand athwart means which would cure cases if used. Not to stretch out helping hands to sufferers because of a false, not to say insulting, statement, seems to me worthy of fiends, and unworthy of men whose business it is to mitigate, not prolong suffering. He then took the ground that these forms were ciliated epithelia, and said he had a slide with some that he had taken that day. He said, "Mr. President, I would show them, but I have no microscope." Said I, "Mr. President, I have a microscope which is at the gentleman's service." Said he, addressing me, "Your microscope is not good for anything, and I cannot use it." Said I, "Please let me try for you." I took my clinical microscope with a $\frac{1}{16}$ inch objective, four systems, 180° angular aperture, made by the late Robert B. Tolles, of Boston, whose reputation as maker in Europe (as I found out for myself) is second to none, and found the form the doctor alluded to. I then handed the microscope to him and he made believe that he looked, and said, "Mr. President, I can't see anything."

I replied, "Mr. President, I can, and I can furnish microscopes, but not brains." I could not help saying this, such was my indignation at the obstinacy

to being convinced, of a man who had characterized the beautiful $\frac{1}{16}$ inch objective of Tolles as good for nothing, when it was one of the best ever made.

After adjournment, I asked the gentleman if he had seen the forms he noted in any other patients? He replied that he had not; so an appointment was made to see cases the next day. I had my cases there, but the gentleman did not appear, because he was too busy.

Why I believe in the Asthmatis, and regard the treatment of grip, based on this belief, as one of the most beneficent and useful *American uses* of the microscope:

a. The asthmatis is not found in ordinary colds. Ciliated epithelia are. Others may, but I have never found human ciliated epithelia in motion on the body in ordinary colds.

b. I was never taught that there were ciliated epithelia deformed. With these exceptions including observations above named, I never was taught that ciliate epithelia resembled the asthmatis. If these forms are deformed epithelia, why should it not have been taught me to prevent mistakes on my part?

c. The asthmatis has been found on the mucous membrane of the conjunctiva of people suffering with grip. If these forms are deformed ciliate epithelia, why have not histologists taught that they are found on the human eyeball?

d. The asthmatis reproduces by budding, cleavage, gubernacular method and parturition from the parent. There is no authority for such reproduction of deformed ciliate epithelia. If there is, I want to know it.

e. The fact that the Philadelphia savants found forms like the asthmatis in infusion of grass, shows a strange habitat for deformed ciliate epithelia human. I am aware of the great vitality of human epithelia in hydrant water, and have often observed them, but never have found ciliate epithelia. I have searched in the hydrant water of about thirty cities and towns

and in the canals of the Netherlands for the asthmatos, but never found one I felt sure of until August, 1890, in a canal between Harlem and Leyden, Holland. I have found plenty of free and actively moving ciliated epithelia in the juice that laves the mantles of the common marine soft-shelled clam, along with cilio-flagellate infusoria, I think.

f. The most practical evidence to me of the forms in question, flagellate infusoria and not ciliated epithelia deformed, is their behavior to treatment with quinine, salicin, menthol, the fumes of burning sulphur and nascent chloride of ammonium, to name no more. I have found patients suffering with grip and infested with the active and lively forms in question, and made them inhale the fumes of burning sulphur, and seen them instantly relieved of the bad symptoms. Examining the secretions just after the inhalation and relief, I have found like forms in question, dead and motionless. If deformed ciliated epithelia are thus affected by burning sulphur fumes, for example, it is something novel in medicine, and not taught.

So long as I find that grip patients are relieved and cured by killing and removing what I believe to be the asthmatos, I shall not cease to be grateful to the Dutch for inventing the microscope, and while I respect the opinions of those who differ, I shall continue to follow and advise the practice here laid down, as a brilliant gem in the crown of American medicine.

New York, April 16, 1892.

ASTHMA AND HAY FEVER.

1. ASTHMA IS A NERVE DISEASE WITH PHYSICAL CAUSES. That is, the attack we call *asthma* is due to a spasm of the muscular fibres of the bronchial tubes caused by stony or gravelly bodies in the mucus secreted in the shape of fine granules, massive concretions, or in crystals some of which are sharper than a cambric needle. These fine points irritate the muscular fibres of the bronchial tubes so that they contract as in a cramp, because they are worn out by the irritation. To be sure, there are cases where these physical causes exist without any exhibition of such spasmodic action. This is particularly so in *hay fever*, so called. Here the gravel exists the year round, and the system is able to bear with it until about the 20th of August generally, when the pollen of plants which mature then is inhaled and sets off the paroxysms, much as the firing of a loaded gun is caused by the pulling of the trigger. As the loaded gun only awaits the trigger work to go off, so do the hay-fever people anticipate the explosion by going to the mountains, where they obtain temporary relief, as there is no such pollen to excite them.

2. IMPROPER FEEDING THE PRIME CAUSE OF THE GRAVEL WHICH CAUSES ASTHMA. A German physician lately resigned vegetarianism and his presidency of a vegetarian society because gravelly bodies were being deposited in his temporal arteries. Atheromatous arteries at the age of forty meant death, was his reason. It were well if asthmatics were wise like this man.

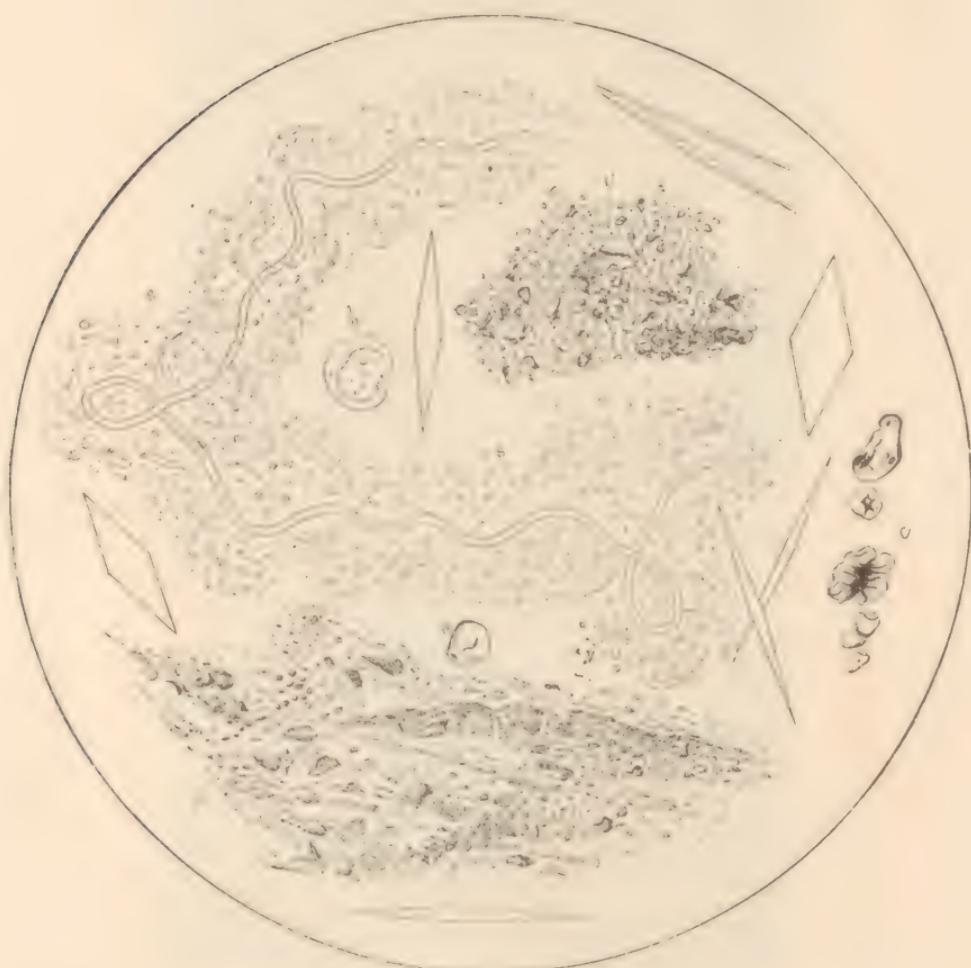
3. ANOTHER CAUSE IS THE *SPIRILINA SPLENDENS*. This is a parasitic alga, discovered some thirty years ago in America and corroborated by the writer. It is found in the expectoration of asthmatics and hay-fever cases. Not always found, as it is impossible to examine every particle of the expectoration. It adds to the difficulty of expectoration. Those who doubt these statements are requested to study the sputum of asthmatics, as was done here thirty years ago, before they cavil.

THE PLATE ON OPPOSITE PAGE IS A DRAWING OF THE SPUTUM of an obscure case of asthma, called by the physicians capillary bronchitis, and which was cured by ridding the system of the morphology above given. The fine granular gravel looks like dust. The massive gravel is in larger masses. The acicular crystals are clear and distinct.

The points are distinct enough, but they are blunt and crowbar-like when compared to the acicular crystals found in the asthmatics of Colorado, for example, where they claim to be cured of asthma and are not.

The long filament, surrounded with mucus more or less filled with granular gravel, is the *Spirilina splendens*. The artist could not do justice to it, as it has a beautiful golden color with a bright sheen. Inch objectives and oculars show it best.

MORPHOLOGY OF ASTHMA AND HAY-FEVER SPUTUM.



Crystals, crystalline bodies, and gravel found in asthmatic expectoration and in hay-fever; also *Spirilina splendens* (Salisbury), in obstinate cases of Asthma.
(E. Cutter, 1883.)

FOOD AND TUBERCLE. EPHRAIM CUTTER.
Plate I.

Fig. 1.



Fig. 2.



FIG. 1.—Microphotograph, one-fiftieth in. objective, Tolles. Taken in 1875, by E. Cutter. Healthy blood. Special object focused for was the white corpuscle. Compare it with Fig. 1, Plate III.

FIG. 2.—Healthy blood, one-sixteenth inch objective, Tolles. E. Cutter, x883.

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FOOD AND TUBERCLE. EPHRAIM CUTTER.
Plate II.



Fig. 1.



Fig. 2.

FIG. 1.—ropy, sticky and adhesive blood as found in cases of Tubercle and Rheumatism. Here it is from Tuberclie and contains vinegar yeast. Microphotograph, one-sixteenth inch objective. E. Cutter, 1876.

FIG. 2.—Microphotograph, one-sixteenth inch objective of Tolles. Tuberculous blood; case under treatment and shows improvement. There is an endeavor to rouleaux rightly. The vinegar yeast is not so plenty. E. Cutter, 1876.

Plate III.



Fig. 1.



Fig. 2.

FIG. 1.—Microphotograph, Tolles, one-seventy-fifth inch objective. The first taken; by E. Cutter and G. B. Harriman, D.D.S., of Boston, 1876. Tuberculous blood. Three white corpuscles distended and the fourth ruptured by spores of vinegar yeast.

FIG. 2.—Microphotograph, 1876. E. Cutter. Taken with Tolles' one-fiftieth inch objective. Fibrin filaments in excess as found in tuberculous, embolic and rheumatic blood.

THE MICROSCOPE IS NOT A TOY, BUT A USEFUL MEANS TO GYNECOLOGICAL ENDS.

Read before the Gynecological Society of Boston, March, 1892.

BY EPHRAIM CUTTER, M.D., LL.D.
CORRESPONDING MEMBER.

It shows one cause of neurosis and fetid urine in women.

Case 1.—Some years ago, a lady patient complained of the offensive odor of her urine when voided. She said it smelt like “bilge water.”

On examination the urine was found to be of good specific gravity, slightly mahogany colored, no deposit on cooling, no albumin, no morphological element at first found. The odor was, as she said, a strong smell of tannic acid as in newly tanned sole leather.

I did not give up, but carefully noting this and other experiments with the microscope I found bacteria in considerable quantity, in the freshly voided urine. They were segregate, globular, and not auto-mobile. I regarded them as the babies of a fungus vegetation, corresponding to the bacilli or babies of the butyric acid fermentation vegetation found in rancid butter which in baby stage of development multiply and by the life chemical actions of their protoplasm develop the rancid smell and taste, just as the gases of putrefaction are developed by the bacteria and mycelial filaments of the putrefactive vegetations.

It occurred to me to lay down the principle for myself, that no bacterial nor mycelial vegetations were normally present in the urine while it is inside the bladder, and that the smell complained of was due to the presence of this very vegetation, whose name I was not acquainted with. Nor did I think it necessary to wait for the name before action to remove, any more than one would stop to ask the name of a burglar caught in his house at midnight stealing, before he was arrested or driven off.

By treatment the vegetation was removed, and the bad smell went with it. Hence I have concluded my reasoning was correct.

Treatment.—This case was treated on the principle that if nature is well sustained she will clear out any such abnormal vegetation. In other words vegetable parasites will not live in a perfectly healthy body, any more than the fungus which causes peach tree blight will grow unless the tree has been weakened by the losing of a certain amount of its normal mineral food, as Prof. Goessmann, of Massachusetts Agricultural College, told me.

Now, as I had known from experience that beef was an article of food which requires the minimum of nerve force to digest, and when digested would sustain human life in normality indefinitely (I have not the time to give the reasons, nor do I need to, as this is merely an esoteric history), I put her on beef alone, and in a short time the bad smell disappeared and along with it the bacteria aforesaid. No medicine.

Remarks.—This may be called general treatment. It should never be forgotten that after all it is nature that cures. In husbandry it is nature that raises the crop. For the farmer may plow, plant, and cultivate in vain, unless nature does her work. Paul said "I have planted, and Apollos watered, but God gave the increase." Nature will cure almost any disease if she has a fair chance.

Case 2.—A middle aged lady made great complaint of fetid urine as it was voided. (If it becomes fetid on standing it is not so much of a medical matter, though perfectly healthy urine is not apt to become fetid, unless kept in a very warm place.)

Along with this she had great distress of the bladder; hyperesthesia of the urethra and vagina, with a completely anteverted uterus bound down by adhesions.

This case has had a singular history to which I will refer briefly:

She had been a patient of Drs. H. R. Storer and Warner, in their private hospital in Somerville, and was operated on by them for stricture of the rectum in 1870.

In 1872, she was operated on by Dr. A. S. Woodward¹ of Brandon, Vermont, who removed the entire coccyx,² which had been broken by a severe fall years before. In 1876, she was operated on by Dr. Charles L. Allen³ (now dead), professor of "Theory and Practice," University of Vermont, by dilating the urethra and carrying fingers into the bladder, finding ulceration, which he relieved by injections of nitrate of silver solution. In 1880, she was operated on again by Dr. Allen for stricture which had entirely closed the rectum nearly four inches for a week: all which helped to explain the neurasthenic suffering. I examined her blood for rheumatism (as she had had it before) with the microscope, and found none. The chemical examination of the urine shed no light, but a microscopical inquiry as to the fetor of the urine at once showed a bacterial or microbial vegetation made up *not* like that of case 1, with globular spores alone, but of several globular spores joined side by side, so as to make rods or bacilli which were very numerous, auto-mobile and active. The microscope, and the mi-

¹ Prof. "Diseases of Women and Children," University Burlington, Vermont.

² At that time, said to be the fifth case on record in the world.

³ Of Rutland, Vermont.

croscope alone revealed to me the true situation. Here was a case with anteverted uterus, with the coccyx removed, with the rectum torn open twice and seared with a hot iron, the urethra dilated, and the bladder treated as above, who could live in comparative comfort, but who by the addition of the intra-vesical cryptogamic vegetation was rendered almost frantic with suffering.

In addition to the suffering and the fetor, she complained of having a "wooden bladder." All natural motion of the organ had ceased except when stimulated by powerful diuretics, and she could not empty the bladder without supra pubic manual pressure. She had called the attention of her physician to these symptoms. He examined the urine with a microscope (so he told her) and said there was nothing the matter with the urine. The odor was due to the condition of the blood, which he did not examine.

Doubtless I should have done no better than her medical attendant, had I not since 1853, been almost constantly studying the urine in disease, and have learned much more than I knew when I first began. Nor should I now write this communication except that the lady in question insisted it "was my duty to suffering humanity" to tell what I knew about such cases.

The treatment in this case was general and local.

General Treatment.—This patient had for sixteen years lived principally on a milk diet, prescribed by Dr. Allen, of which diet she was very fond. I could not bring her down to beef alone, it distressed her and made her sick at the stomach, but I got her down *towards* it. I told her she could not expect to "cast out Satan," if she continued to let him in through bad food.

Local Treatment was by injecting the bladder with a warm, saturated, watery solution of benzoate of soda once in two days.⁴ The fountain syringe was

⁴ It was allowed to remain as long as it could be retained—three hours in one instance.

employed. Such was the extreme hyperesthesia of the urethra, that it was positive agony to introduce the catheter for injection. The subsequent suffering was also very great.

Still, the effect on the vegetation was prompt and decisive. The auto-mobile protoplasmic motions of the bacteria ceased. After the second injection, their number was greatly diminished. The relief was great. After the third injection, some of the parent mycelial filaments were found. Evidently the "old settlers" were being rooted out. I suppose the vegetations nested in the folds of the contracted bladder, ready to go forth when the field was clear. Indeed, from the chronic nature of the case, I expect it will take some time to kill off the whole brood.

But there is so much relief from what has been done, that I feel assured she will be entirely relieved of these vegetations which, superadded to her old troubles, have made her life one of misery and torment the past few months.

Thanks to the use of an instrument which is regarded as a toy, or as my "hobby," or to be kept at a drug store, and a very poor one at that.

Remarks on the Nature of this Vegetation.—Some time ago, in *Gaillard's Medical Journal*, I published an account of lactic acid vinegar, lactic acid alcohol, and lactic acid mycelial filaments which loaded the urine and sputum of a patient who had lived on milk, and taken lactic acid as a medicine. Since that time, an oxalate of lime calculus was removed from his bladder. It is possible that a stone is in the bladder of the present case. But as she has a history of a milk diet, it is probable her vegetation is lactic acid in the bacterial stage. This is for one who knows more than I do to decide. But the case is viewed from the standpoint of a gynecist, not a technical botanist. If a foreign body gets into the eye, surgeons do not wait for an accurate description before removal, though it would be desirable.

This case is under treatment which, but for the microscope, would not be understood.

Case 3.—That noble man, Dr. Wheeler, of Chelsea, Mass., called my attention some years ago to a case of catalepsy, a lady 72 years old, which needed more study than the medical gentlemen who had seen her could give—adding some encouraging and stimulating words, that made me put my wits to work at once.

It seems she referred the seat of her trouble to the pelvis, saying that when "she had fits," there seemed to be something streaming up in her abdomen from just above the pubis, that would go all over her, and then she would be in the midst of her catalepsy. Her blood was normal. I supposed the case was due to uterine trouble. On examination, I found a rarity. The uterus, in size and position, was normal. The speculum revealed an almost virgin os; the vagina was normal. There were no tumors found. Abdomen was normal. As it is a rule with me to examine urine of patients under the microscope, I did so here. Another surprise. I found the freshly voided urine filled with:

1. Large, beautiful and graceful skeins of mycelial filaments.
2. Bacteria in large abundance and very actively swarming.

There was no other abnormality that I could find.

In the order of time this case occurred before cases 1 and 2. I spent some time in admiring the beauty of the vegetations, and then it came to me to lay down for myself the principle above stated, that such a vegetation, so fully developed, had no normal place in the bladder, and that, in the absence of other known causes, it was wise to conclude that this profuse abnormal vegetation was the cause of the catalepsy, from the irritation it caused to the central nervous system—analogous to a person wanting to pass water all the time. This, kept up for a long

time, as it had been, seemed to be the exciting factor of the neurosis.

Acting on this principle, I injected a teacupful of a warm, saturated, watery solution of benzoate of soda and salicylate of soda, equal parts. I taught her daughter to do this three times a week. I think I saw her once or twice only. But Dr. Wheeler reported to me that she never had another neurotic symptom after the first application, but died of some other complaint a year or two later.

Remarks.—Perhaps some one may ask, Have you found in newly voided urine these vegetations without the neurosis? Answer. I have. Case 1 had no neurosis—but I have no doubt, had it been allowed to run on, it might. If the constitution is strong enough to bear it, no neurosis may occur. People have the gravel of the blood latent in rheumatism without a rheumatic attack, until a cold brings it out; or gravel of the lungs latent and no asthma or hay fever, until some exciting cause brings it on. Or, to use another simile, a gun does not go off, even though loaded, unless fired. How often have guns, said to be *not* loaded, gone off and killed people from the hands of those who are in sport. The load is the predisposing cause of the explosion of the gun, and the pulling of the trigger is the exciting cause.

My old teacher, Prof. Hodge, of pessary fame, used to tell of a Philadelphia market-woman who did business for years, and slept in her market wagon summer and winter at night, on Market Street. Yet her uterus, all this time, was completely prolapsed down between her thighs, and she said she suffered none from it! So it may be that these vesical vegetations are not always the cause of neurotic trouble, but to get rid of fetid urine in the bladder, unless there is stone or some organic disease, or dirty catheter, in my opinion you must get rid of the vegetations which produce it, and can be surely diagnosed only by the use of the microscope, not as a toy.

MICROSCOPE IN GYNECOLOGY.

but as an instrument of precision of positive gynaecological value, not to be despised nor counted out.

Postlude.—In Case 2 there was a spasmodic condition of the urethra—urethrismus—due to these vegetations, which are sometimes found with stone in the bladder—but there was no evidence of stone in any of these cases. If I can be allowed in this connection the privilege, I would like to hint the desirability of studying the morphology of intravesical urine in all cases of urethrismus, so as to be sure that these vegetations are not overlooked.

Case of Suppressed Menstruation.—January 26, 1892, a large maiden of 25 years, in the midst of menses, took, at midday, a long ride in a dogcart. She was very much chilled and disagreeably shaken up. The menses ceased to flow. At night she was very much oppressed in breathing, and in a good deal of stomachic distress. About midnight she vomited blood largely. As she went to the bath-room the floor was stained with blood. In the bath-room she fainted and fell to the floor. My son, Dr. John A. Cutter, found her in surroundings that looked as if murder had been committed. Though her history was clear, still it was desirable to know that the haemorrhage was not of a tuberculous complication. Having no microscope with him, he sent for me and a clinical microscope, and I found that while the morphology of the blood was not normal, it was not tuberculous. This made the diagnosis clear. Though the patient was very ill and about moribund, she is now recovered completely.

* * * * *

GYNIC DISEASES HAVE NOTHING TO DO WITH INSANITY (?)

At a late meeting of the New York State Medical Association, a reader took the above ground strongly. He based it mainly on the statistics of insanity, foreign and domestic, which showed that as many women were insane as men, who had no uteri to get out of

order; that if gynic diseases operated to produce insanity, the proportion ought to be larger of alien women to alien men; that hence, it was useless for alienists to become gynecologists as there was no call for their work.

Now, in reply to this, I would like to see some joint expression of our Society based on facts to show its fallacy or not. Some points to be raised are as follows:

1. These statistics were made by those who confessedly knew not about gynecology.

2. Except from outside pressure alienists will not make gynecological examinations nor studies.

3. To insist that there are no gynecological lesions in insane women, because they have not been looked for and thus not found, is to beg the question and amounts to no reason whatever for the position.

4. The writer and others claim that gynecological affections, by the withdrawal of nerve force, virtue or dynamos, do weaken the mind so that some women become insane from this cause as experience has shown.

5. Insane women who have had gynecological diseases cured, have become sane.

6. A physician told a patient of mine that he had studied six months in an insane asylum, where, out of 400 women he found 300 with female diseases, and that in his opinion they would not have been insane if their local troubles had been properly treated at the outset at home.

7. In my opinion lesions of the sexual organs are causes of insanity in men. I have found neurasthenia in men to come from a urinary catarrh of the spermatic ducts. This catarrh is in three forms, I think: 1. Proto-plasmic, like the white of egg. 2. Skeins and filaments more or less marked. 3. Indian club shaped. (For its detection use one inch objectives.) Out of 100 cases at Flushing, L. I., Male Insane Asylum, I found at least eighty who had in their urine one,

two or three alone, or combined in sufficient quantity (provided they were fair samples) to produce neurasthenia, which is thus shown to be one cause of insanity. If this is so, may not this catarrh explain why there are as many men as women insane? And from parallel sexual causes, too.

8. An insane woman who had been to an Alienist Asylum for treatment was not even examined gynecologically. She paid her bills. After a considerable time she was discharged as uncured. She was found to have anteversion complete and a hyperesthetic uterus with $3\frac{1}{2}$ inches depth of cavity. She was treated with iodoform vectors till the hyperesthesia was removed, and the uterus reduced to normal size. She then wore my stem pessary for a few months and is now entirely cured. She was so grateful to her physician, Dr. Wheeler, of Chelsea, that she wrote and desired to publish a letter of gratitude to him for her complete restoration to health and reason. I saw this case in consultation with Dr. Wheeler, who carried out my plan, and can give if he will, the full particulars.

9. I think the reader, above referred to, should be answered also as he threw ridicule on gynecologists by saying that there was only one time when a man should pass through or be acquainted with the vagina, *to-wit, at birth!* Unless better reasons than these are given, I for one, shall consider the alienists as derelict in their duties to the unfortunate women under their charge.

I know of no other body in the world better entitled to take up the gauntlet thus thrown down than this Society, which was the first in the world to take up especially the study of women's diseases—insanity included.

1730 Broadway, New York, Feb. 8, 1892.

APPENDIX.

PARTIAL LIST OF WORKS

OF

Dr. EPHRAIM CUTTER.

A. TROPHOLOGY.

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68. Does the use of flour promote affections of the nervous system? Boston Journal of Chemistry, February, 1875.	85. Candy. Boston Journal of Chemistry, April, 1876.
70. Asthenic disease and flour. Boston Journal of Chemistry, April, 1873.	96. Food as a medicine in uterine fibroids. American Journal of Obstetrics, October, 1877.
74. Arlington wheat meal. Circular, 1875.	97. Is flour our proper food? Trans. New Hampshire State Med. Society, 1875; The Doctor, New York, January and February, 1890.
77. Report of lecture on food. Report of invalid chair. Vineyard Gazette, 1875.	103. Salisbury plan in consumption. Boston Journal of Chemistry, November, 1879.
78. Treatment of consumption by animal food. Boston Journal of Chemistry, January, 1876.	106. Food in agalaxia. American Journal of Obstetrics, New York, April, 1878.
81. Why is wheat preferable to oat as man's food? Cold-Air Attrition Flour Co., Chicago, Ill., January, 1876.	114. Teeth and flour. American Journal of Dental Science, November, 1878.
82. Appeal to use cold-air attrition wheat flour. C. A. A. W. Co., January, 1876.	147. Feeding of nursing children. Virginia Med. Monthly, August, 1880.

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